

18

2 An Identity Threat Perspective 3 on Intervention

4 ■ GEOFFREY L. COHEN, VALERIE
5 PURDIE-VAUGHNS, AND JULIO
6 GARCIA

7 Kurt Lewin, the renowned experimental social psychologist, said that
8 understanding the processes underlying a problem can help us to remedy it.
9 He also said that one of the best ways to understand a phenomenon is by
10 trying to change it. This chapter discusses how an understanding of “identity
11 threat”—the psychological threat arising from possible devaluation of
12 one’s group—led to successful interventions that actually closed the
13 achievement gap in schools, a pervasive social problem in the United States.
14 The interventions include invoking high performance standards, encourag-
15 ing optimistic interpretations of adversity, and buttressing students’ sense
16 of self-integrity and belonging. All the interventions were tested using
17 randomized field experiments that assessed outcomes over long periods
18 of time, sometimes years. Not only did the interventions lead to positive
19 academic trajectories for ethnic minority students in general and female
20 students in science, they also advanced a theoretical understanding of how
21 identity threat compounds over time through recursive feedback loops.
22 Because of the self-reinforcing nature of recursive cycles, subtle but well-
23 timed interventions can have effects that appear disproportionate to their
24 size and duration. Additionally, the research shows how making the jump
25 from lab to field—from theory to application—can bring to light new theo-
26 retical principles related to psychological processes and intervention itself.

27 **Keywords:** Stereotype threat, academic performance, black–white test
28 score gap, male–female science gap, intervention, affirmation

29 Across a variety of times and places people have faced negative stereotypes about
30 their group’s ability and belonging in society. Because they know that members of
31 their group have faced prejudice and discrimination, and because they may have
32 experienced these themselves, they may worry they could be judged or treated
33 stereotypically (Steele, Spencer, & Aronson, 2002). This concern is understandable.
34 It can be costly to trust someone who could later prove untrustworthy (Cohen &
35 Steele, 2002). The emotional, psychological, and pragmatic costs of committing
36 oneself to an endeavor or relationship, assuming fair treatment only to find other-
37 wise, can be doubly troubling. Not only is there the loss of time and energy, but

1 there is also the feeling of having been taken in. For this reason, in school or work
2 settings in the United States, ethnic minorities may entertain the hypothesis that
3 they could be stereotyped until they are provided with evidence to the contrary.
4 Women in math and science may experience similar concerns (Davies, Spencer,
5 Quinn, & Gerhardtstein, 2002).

6 However adaptive and reasonable this response can be, it can prove costly. As
7 other chapters in this volume attest, the concern that one may be viewed through
8 the lens of a stereotype—stereotype threat—can raise stress, deplete mental
9 resources, and undermine performance (Steele et al., 2002; see also Beilock, Rydell,
10 & McConnell, 2007; Inzlicht, Tullett, & Gutsell, 2011, Chapter 7, this volume;
11 Schmader, Johns, & Forbes, 2008). It can erode people's sense of comfort, belong-
12 ing, and trust (Cohen & Steele, 2002; Steele et al., 2002; Walton & Carr, 2011,
13 Chapter 6, this volume; Walton & Cohen, 2007), as well as lower their career
14 aspirations (Davies et al., 2002). Structural factors are often seen as the source of
15 inequality. However, inequality can also arise from differences in people's percep-
16 tions, their subjective construals (Ross & Nisbett, 1991). Groups may differ in their
17 subjective construals at school or work because of real historical antecedents. But
18 such construals can reinforce objective inequalities. When members of a group
19 underperform because they perceive that they could be stereotyped, their educa-
20 tional, economic, and career opportunities diminish. Because inequality has psy-
21 chological as well as structural causes, psychological interventions need to be
22 considered along with structural approaches (Nisbett, 2009).

23 Research on stereotype threat has shown that it can occur regardless of the
24 objective prejudice in an environment. The mere possibility that one could be seen
25 negatively can prove threatening. All of us belong to groups that, in one setting or
26 another, can cast us as outsiders. When we care about succeeding in the setting, the
27 sense of being seen as an outsider can be debilitating. As research on stereotype
28 threat demonstrates, such concerns can arise from widely known negative stereo-
29 types about our groups (Steele et al., 2002). A white basketball player may worry
30 about confirming, in the minds of others, the "white men can't jump" stereotype to
31 such an extent that it undermines his or her vertical leap performance (Garcia,
32 2002). Likewise African Americans and Latino Americans at school or work, and
33 women in math and science, may underperform because of the stress arising from
34 possibly confirming a negative stereotype about their ethnic or gender group (Davies
35 et al., 2002; Steele & Aronson, 1995).

36 Stereotype threat is an example of the general phenomenon of identity threat
37 (Branscombe, Schmitt, & Harvey, 1999; Steele et al., 2002). *Social identity threat*,
38 the group form of this threat, arises when people realize that they could be devalued
39 on the basis of their group for any reason. Because the threat is directed at one's
40 group, one need not experience it personally. For instance, African Americans and
41 women felt threatened—displaying lower self-esteem and worse performance—
42 when they knew that someone *else* in their group could perform poorly and thus
43 lend credence to the stereotype (Cohen & Garcia, 2005). Like any psychological
44 stressor, identity threat can depress cognitive functioning and emotional well-being,

1 especially when chronic and experienced in a domain, like school or work, where
2 outcomes have material and symbolic consequences.

3 ■ MOVING FROM LAB TO FIELD: CONCEPTUALIZING 4 IDENTITY THREAT IN REAL-WORLD SETTINGS

5 Laboratory research suggests several effective steps for reducing stereotype threat.
6 Among these are exposing students to role models who disconfirm the stereotype
7 through their competence (Marx & Roman, 2002), encouraging people to see
8 performance gaps between groups as due to social rather than genetic factors
9 (Dar-Nimrod & Heine, 2006), and having people call to mind an alternative, posi-
10 tively stereotyped identity they hold, such as “high-achieving college student”
11 (Rydell, McConnell, & Beilock, 2009). A structural strategy to reduce stereotype
12 threat is to ensure adequate representation of the stereotyped group (Inzlicht &
13 Ben-Zeev, 2000). The picture of stereotype threat emerging from these studies is of
14 a process that is powerful but malleable. Although stereotype threat causes dramatic
15 decrements in performance, small changes in the laboratory can free people of its
16 effects. Clearly, it is possible to manipulate a person’s subjective construal in the lab
17 for the better. Such laboratory research, moreover, proved critical in the develop-
18 ment of social-psychological interventions that closed achievement gaps in schools.
19 However, in the field, unlike the lab, a blizzard of competing cues could offset the
20 effect of any positive intervention. A solid understanding of how identity threat and
21 intervention processes play out over time and interact with other factors in social
22 environments is needed.

23 Figure 18.1 presents a model of the way in which psychological threats, including
24 identity threat, affect performance (Cohen & Garcia, 2008). Threat acts as a restrain-
25 ing force (Lewin, 1951). It prevents positive forces in both the student and the envi-
26 ronment from asserting their full impact on performance and learning. A student
27 may have the ability to excel, but stereotype threat may prevent the expression of

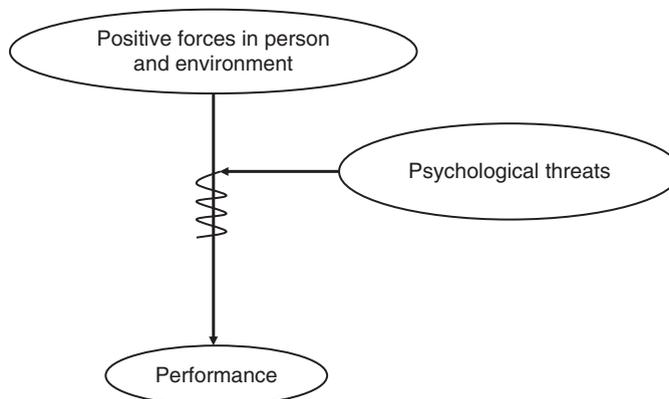


Figure 18.1 The interplay of psychological threat with other forces.

1 that ability, as when a skilled athlete chokes under pressure. Likewise, opportunities
2 for learning may present themselves, but an intimidated student may fail to take
3 advantage of them. Threat may also make negative factors gain a larger role in out-
4 comes. For example, poor performance due to stereotype threat can make it more
5 likely that a student will be assigned to remediation or held back in grade. Just as
6 drag can prevent a car from achieving its top speed and efficiency, psychological
7 forces can limit the efficiency of the school system. Effective social psychological
8 interventions lessen threat, and thereby enable the positive forces to assert their
9 impact more fully and help constrain forces that could have a negative impact.

10 Rather than being mutually exclusive, psychological and structural approaches
11 are thus complementary (Garcia & Cohen, in press). Although both are necessary
12 for optimal performance, neither is sufficient. For example, one popular psychologi-
13 cal intervention is that of *attributional retraining* (Wilson, Damiani, & Shelton, 2002;
14 see also Good, Aronson, & Inzlicht, 2003; Walton & Cohen, 2007). Students
15 are taught to attribute set-backs to factors unrelated to the stereotype or a lack of
16 belonging. Instead, they are encouraged to attribute them to common challenges
17 inherent in school. Such interventions can dramatically improve performance (see
18 Wilson et al., 2002). But they can prove ineffective and even counterproductive
19 when unaccompanied by objective opportunities for growth. For instance, attribu-
20 tional retraining paired with poor instruction produced no improvement in perfor-
21 mance for students with a history of failure. But when paired with high-quality
22 instruction, it produced a level of performance on par with that of their peers
23 without a history of failure (Menec, Perry, Struthers, Schonwetter, Hechter, &
24 Eichholz, 1994).

25 One line of research explored the interaction between psychological and struc-
26 tural factors in a key educational situation—the feedback interaction between
27 teacher and student. In this research, we explored the effects of identity threat in an
28 interpersonal arena with implications for learning, rather than in the more common
29 test-taking situation. Among the strongest predictors of student growth is the qual-
30 ity of feedback from mentors (Lepper, Aspinwall, & Mumme, 1990; Walberg, 1984).
31 Such feedback is seen as a fundamental aspect of pedagogy by the educational com-
32 munity. If, as is often the case in today's schools, an African American student
33 receives critical feedback from a white teacher, there is a potential for mistrust. The
34 African American may wonder if the feedback reflects a genuine intent to help or
35 if it instead reflects a biased judgment of his or her ability (Crocker & Major, 1989;
36 see also Cohen, Steele, & Ross, 1999). When African American students were led
37 to believe that a white college professor had given them critical feedback on an
38 essay, they saw that feedback as relatively more biased than did white students and
39 felt less motivated to revise it (Cohen et al., 1999). In a follow-up study, college
40 science majors received critical feedback on a research presentation from someone
41 they were led to believe was a male science professor (Cohen & Steele, 2002).
42 Compared with male students, female students incorporated relatively fewer of the
43 suggestions for improvement into a revision of their research presentation. In terms
44 of Figure 18.1, critical feedback—a structural factor that should facilitate learning

1 and motivation—had a positive effect only for the nonthreatened group. Even
 2 though our methodology ensured that nonstereotyped and stereotyped students
 3 received virtually identical feedback, the two groups perceived it differently.
 4 Contrary to a color-blind philosophy, uniform instruction did not have uniform
 5 effects.

6 How can we minimize the threat of negative stereotypes in order to convey feed-
 7 back more effectively? In another experimental condition, we tested a theory-driven
 8 intervention designed to deflect the threatening characterization of the stereotype.
 9 Here, students received the same critical feedback as before, but now accompanied
 10 with the professor's assertion that he had high standards and his personal assurance
 11 that the student in question had the potential to reach those standards. The message,
 12 we thought, would invert the meaning of critical feedback in the eyes of stereotype-
 13 threatened students. They would see it less as a sign that the teacher had stereotyped
 14 them and more as a sign that he believed in their ability. Indeed, African American
 15 students receiving the feedback in this manner saw little if any bias and were as moti-
 16 vated as their white peers. Likewise, female science majors receiving this feedback
 17 incorporated significantly more of the feedback's suggestions for improvement.

18 These studies reinforced the lesson that relatively small interventions, when
 19 attuned to important psychological processes, can have large effects (Ross &
 20 Nisbett, 1991). They suggested that theory-informed strategies could alleviate
 21 identity threat and close gaps in the ability to benefit from educational opportunity.
 22 A recent field experiment found that the same intervention improved middle-school
 23 students' ability to learn from their teachers' feedback on their written work (Yeager,
 24 Purdie-Vaughns, Garcia, & Cohen, in preparation).

25 ■ APPROACH TO REAL-WORLD INTERVENTION

26 Our intervention approach rests on three ideas (Garcia & Cohen, in press)—
 27 levers, recursion, and the dynamic nature of social systems. The first, *psychological*
 28 *levers*, are points in a complex system where targeted intervention can produce
 29 nonintuitively large and long-term effects. The lever used in many successful inter-
 30 ventions concerns core psychological motives for belonging, self-integrity, and
 31 competence (Baumeister & Leary, 1995; Ryan & Deci, 2000; Steele, 1988; see
 32 also Sherman & Cohen, 2006). When they combat threats to such motives, even
 33 brief interventions can have large effects. In this way, social-psychological interven-
 34 tions accomplish what exceptional teachers and mentors do in more impactful
 35 ways in the real world (Cohen et al., 1999). They convey to students the message
 36 that they belong, have self-integrity, and can achieve a higher standard. These mes-
 37 sages can prove especially important for socially stigmatized students, because they
 38 help negate a stereotype's characterization that they are seen as lacking ability and
 39 as not belonging. Indeed, when teachers have optimistic expectations for their
 40 students—higher than what is warranted based on students' prior records—this
 41 appears to especially benefit the achievement of minority students (Jussim &
 42 Harber, 2005).

1 Beyond psychological levers, the recognition of recursive cycles is also at the
 2 heart of our approach. In school, work, and many other real-world settings, pro-
 3 cesses can feed off their own consequences. Stereotype threat might lower perfor-
 4 mance. Lower performance in turn could increase stereotype threat, lowering
 5 performance still further, in a repeating cycle. In fact, rather than directly boosting
 6 performance, many social-psychological interventions instead interrupt the down-
 7 ward spiral characteristic of such self-exacerbating cycles (e.g., Blackwell,
 8 Trzesniewski, & Dweck, 2007; Cohen et al., 2006, 2009; Wilson et al., 2002).

9 A final key idea in our approach concerns the recognition of the dynamic or
 10 interactive nature of forces in a social system (Garcia & Cohen, in press; Ross &
 11 Nisbett, 1991). An intervention effect might act as the first spark in a chain reaction.
 12 For instance, a small intervention early in the year could raise children's perfor-
 13 mance. Because of this, their teachers may see such children as being more worthy
 14 of attention. The intervention effect could then be carried forward and even ampli-
 15 fied by teachers' positive expectations (Jussim & Harber, 2005; Rosenthal &
 16 Jacobson, 1992). Such interactions can involve many social and psychological pro-
 17 cesses. Students who do better early on may come to feel efficacious in school,
 18 believe in the malleable nature of intelligence, and trust their teachers, all of which
 19 can contribute to better performance (Blackwell et al., 2007; Garcia & Cohen, in
 20 press; Tyler, 2004).

21 Because of recursive, interacting cycles, early outcomes have disproportionate
 22 impact. Early differences, even when slight, can snowball into large effects over
 23 time, as feedback loops both compound initial differences in performance and
 24 broaden their consequences (Caspi, Elder, & Bem, 1987; Cohen et al., 2009;
 25 Heckman, 2006). As one example, small early advantages in young athletes' size and
 26 coordination—even when due to random variability in when their birthdays fall
 27 relative to the start of the sports season—have sizable effects on their prospects of
 28 becoming professional athletes (Barnsley, Thompson, & Barnsley, 1985). A child
 29 who displays more early competence is likely to be perceived as more able, be given
 30 more opportunities to excel, and receive more mentoring. These in turn can advance
 31 the child's interests and self-confidence, which in turn can further their opportuni-
 32 ties for growth. These recursive processes can play a larger role in domains like
 33 math and science, where subsequent learning builds on an earlier foundation of
 34 knowledge (see Blackwell et al., 2007). Small differences at an early age become
 35 magnified over time, making it increasingly difficult to catch up or enter a discipline
 36 later (Miyake, Kost-Smith, Finkelstein, Pollock, Cohen, & Ito, 2010).

37 The *identity engagement model* incorporates the notions of levers, recursion, and
 38 dynamic interaction (Cohen & Garcia, 2008; Garcia & Cohen, in press). It offers
 39 a model of how identity threat affects performance and learning in real-world
 40 settings over time. Figure 18.2 offers a graphic representation.

41 People's group identity will be psychologically engaged if they think it could
 42 cause them to be judged or treated negatively. For instance, most African Americans
 43 know that school and work are places where they could be judged negatively because
 44 of their race (Steele & Aronson, 1995; Walton & Cohen, 2007). People tend to

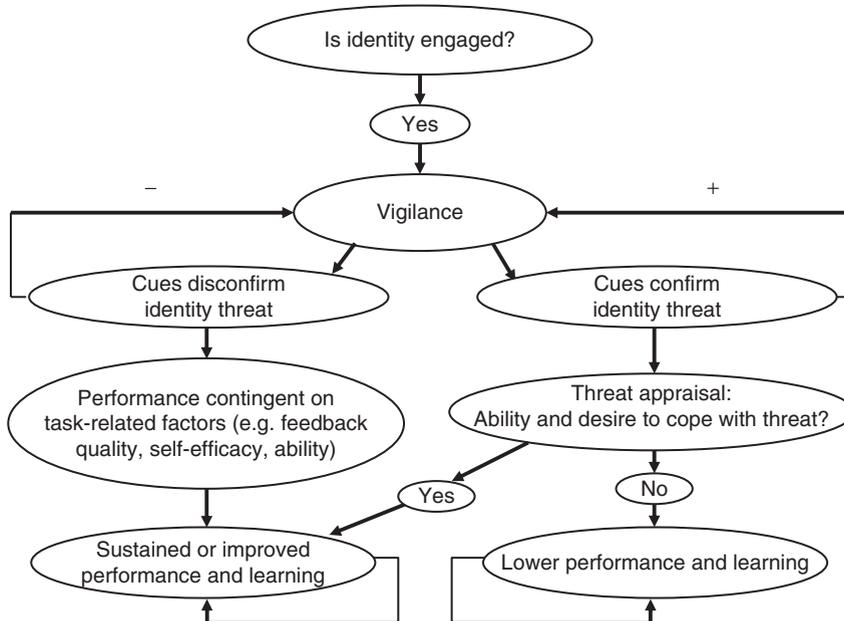


Figure 18.2 The identity engagement model

1 become vigilant when their identity is engaged (Kaiser, Brooke, & Major, 2006;
 2 Murphy, Steele, & Gross, 2007; Purdie-Vaughns, Steele, Davies, Ditlmann, &
 3 Randall-Crosby, 2008). They comb their environment for cues to discern whether
 4 their identity is in fact affecting how they are being viewed. A minority student, for
 5 example, might scrutinize a teacher's feedback for evidence of bias (Cohen & Steele,
 6 2002; Crocker & Major, 1989). In this vigilance stage, people engage in what coping
 7 researchers call a primary appraisal, asking themselves, "Is there a threat?" (Lazarus
 8 & Folkman, 1984).

9 The cues can *disconfirm* the threat, as when a teacher provides critical feedback
 10 with an invocation of high standards and personal assurance. When this occurs,
 11 people tend to feel treated as individuals. Their performance depends largely on
 12 structural and personal factors, such as the quality of instruction and their skill. The
 13 positive forces can assert a relatively direct impact on performance and learning.

14 But if the cues *confirm* the threat, a threat appraisal phase follows. People engage
 15 in a secondary appraisal, asking themselves, "Do I have the desire and ability to cope
 16 with this threat?" (Lazarus & Folkman, 1984). The importance of this stage for
 17 intervention rests on the insight that, often, it is not so much a particular stressor
 18 that is disruptive, but rather the psychological reaction to it. For example, people
 19 perform worse under stereotype threat partly because they try to suppress thoughts
 20 about the stereotype. They expend mental resources that could otherwise help
 21 their performance and, ironically, become more vulnerable to the stereotype's
 22 rebounding into consciousness later (Logel, Iserman, Davies, Quinn, & Spencer,
 23 2009; Schmader, Forbes, Zhang, & Mendes, 2009). One can lessen the impact of

1 a stressor by altering psychological reactions. For example, one study informed
 2 college students that arousal on standardized tests “doesn’t hurt performance and
 3 can even help performance.” This raised their actual scores on the math section of
 4 the Graduate Record Examination (GRE) by almost 1 standard deviation (Jamieson,
 5 Berry Mendes, Blackstock, & Schmader, 2010). The intervention, it seems, changed
 6 the meaning participants assigned to their bodily state. As a result, sympathetic
 7 nervous system activity correlated not with worse performance but better (Jamieson
 8 et al., 2010).

9 In our model, identity threat can escalate, with its consequences feeding off
 10 themselves and creating other vulnerabilities. Teachers may label underperforming
 11 students as at-risk and assign them to a remedial track, which could further under-
 12 mine performance and increase disciplinary problems (Rosenthal & Jacobson,
 13 1992; Steele, 1997). After performing poorly, students may worry still more about
 14 being stereotyped or seen as not belonging (Wilson et al., 2002). Left to itself,
 15 identity threat thus escalates and implicates a broader swath of outcomes (Garcia &
 16 Cohen, in press; Cohen et al., 2009). This could help explain the downward spiral
 17 in performance and disciplinary problems observed, particularly among minority
 18 students, at certain stages like middle school (Eccles, Lord, & Midgley, 1991;
 19 Simmons, Black, & Zhou, 1991). Interrupting the recursive and interactive process
 20 of identity threat early presents an opportunity to have long-term performance
 21 benefits. Even a small initial effect at the beginning of a recursive cycle could serve as
 22 a spark that yields benefits that compound and broaden over time (Cohen et al.,
 23 2009; Garcia & Cohen, in press).

24 ■ FIELD-TESTED INTERVENTIONS

25 The vigilance stage, a phase when people assess their environment, lends itself
 26 to intervention. The meaning people assign to events, their subjective experience,
 27 can be manipulated (Ross & Nisbett, 1991). In the study described earlier, the
 28 meaning of critical feedback changed with an invocation of high standards. It no
 29 longer reflected a biased judgment but a belief in one’s potential (Cohen & Steele,
 30 2002). Vigilance-based strategies provide people with a hopeful narrative for
 31 understanding events in their lives, especially adversity.

32 In one of the experimental conditions in a study by Good et al. (2003), students
 33 were exposed to role models who discussed their initial difficulties after moving
 34 from elementary to middle school, but who reported getting increasingly better
 35 grades as they learned the ropes and kept working (see also Aronson, Fried, & Good,
 36 2002). In another experimental condition, students were led to view intelligence as
 37 expandable rather than fixed (see Dweck, 1999). Both interventions lessened the
 38 tendency to see frustration in school as evidence of intellectual limitation. Compared
 39 with students in a control group, students in both conditions went on to earn higher
 40 statewide test scores. Indeed, girls particularly benefited, eliminating the gender gap
 41 in math scores. Similar positive effects of such interventions on grades were dis-
 42 played in a New York City school by low-achieving African and Latino American
 43 students from economically disadvantaged backgrounds (Blackwell et al., 2007).

1 We explored an intervention conducted at the vigilance stage with our colleague
2 Greg Walton (Walton & Cohen, 2007, 2011; see Walton & Carr, 2011, Chapter 6, this
3 volume). We wondered if an intervention could reframe not the meaning of a single
4 event, like the receipt of critical feedback, but one's entire college experience. As
5 African American students may experience *belonging uncertainty* in school (Walton
6 & Cohen, 2007), visiting and revisiting the question of whether they and members
7 of their race belong, they may globalize the meaning of a setback in school. We tested
8 a strategy addressing concerns about belonging (Walton & Cohen, 2007). It sought
9 to shore up minority students' sense of belonging in school by breaking the false sense
10 that their difficulties were unique to themselves and their race (Steele et al., 2004).

11 College freshmen were brought into the lab at the end of their first year, a time of
12 consolidation. They were told they would be helping researchers interpret the results
13 of a survey, a survey that we had actually administered to junior and senior students
14 at their school. The results of the survey conveyed that although most first-year stu-
15 dents had worried about whether they belonged in the transition to college these
16 worries subsided. Moreover, the survey concluded, the prevalence and duration of
17 these worries did not differ "across demographic groups." At the heart of the inter-
18 vention lay two messages: One's difficulties are shared (Schachter, 1959), and there
19 is reason for hope (Snyder, 2000). To facilitate internalization of the message,
20 students were asked to give a speech summarizing not only the survey results but
21 their relevance to their own college experience, ostensibly to help incoming first-
22 year students better understand the transition to college (cf. Aronson et al., 2002).

23 Relative to both a randomized control condition and campus-wide data, this
24 intervention improved African Americans' grade point average (GPA), an effect that
25 follow-up data indicate persisted through their final year of college (Walton &
26 Cohen, 2011; Walton & Carr, 2011, Chapter 6, this volume). As African Americans
27 benefited most, the racial achievement gap closed by roughly 50%. The intervention
28 had changed the meaning they assigned to their school experience. African
29 Americans receiving the intervention were less likely to globalize the meaning of
30 adversity. On days of hardship, African American students in the control condition
31 dropped in their sense of belonging. But those in the treatment condition did not.

32 Like the high standards and the assurance strategy, these interventions work by
33 affecting primary appraisal—in this case, the meaning assigned to adversity.
34 Interventions at the vigilance stage can be characterized as preventative. They help
35 to prevent threat from arising or from growing so acute that it triggers a downward
36 spiral (Garcia & Cohen, in press). Can interventions prove effective once such a
37 cycle has taken hold? Can they shore up people's internal resources, so that they
38 have the ability to cope more effectively with a threat (Sherman & Cohen, 2006)?
39 Here an intervention acts like an anti-inflammatory. It lessens the psychological
40 reactions that would otherwise inflame the threat. We directly tested this in a field
41 experiment at a middle school with a roughly equal representation of white and
42 black students (Cohen et al., 2006; Cohen et al., 2009).

43 The values people hold, such as those tied to their relationships or their religion,
44 form an important basis of their sense of self-integrity. Calling up one's self-defining

1 values acts to affirm a global view of oneself as virtuous, efficacious, and socially con-
2 nected (Steele, 1988; see also Sherman & Cohen, 2006). This permits people to see
3 a stressor from a broader perspective, lessening its impact on their sense of self and
4 social worth (Schmeichel & Vohs, 2009; Sherman & Cohen, 2006). For instance,
5 values affirmations reduce psychological stress and threat. When they had reflected
6 on important personal values, people asked to give an impromptu talk in front of
7 a difficult audience had lower levels of the stress hormone cortisol (Creswell et al.,
8 2005). Laboratory studies have also shown that values affirmations can lessen stereo-
9 type threat (Martens, Johns, Greenberg, & Schimel, 2006). Anecdotally, some
10 teachers have found that expressive writing, in which underprivileged children relate
11 their troubles to, among other things, social values, can have dramatic positive effects
12 on their engagement with school (Freedom Writers & Gruwell, 1999).

13 Using such findings as our starting point, children were randomly assigned either
14 to a values affirmation condition or to a control condition. In the former, children
15 completed packets inquiring about their values, such as relationships with friends
16 and family, athletics, and music. After identifying their most important values, they
17 wrote about why these were important to them in a series of structured exercises.
18 Different versions of the intervention were repeated throughout the year. Although
19 each administration lasted only 10–15 minutes, the activity tapped into an impor-
20 tant source of meaning for these adolescents. Students in the control condition com-
21 pleted writing exercises focusing on neutral topics, such as an unimportant value or
22 their daily routine.

23 The affirmation had a positive impact on affirmed African American students, the
24 group under identity threat. They earned a higher GPA in the academic term in which
25 the intervention commenced than did nonaffirmed African Americans. The lowest
26 performing African Americans benefited most. In the affirmation condition, the
27 number of African Americans earning a D or below in the intervention-targeted course
28 was only 9%, whereas in control condition, the rate was consistent with historical
29 norms, 20% (Cohen et al., 2006). Over their remaining 2 years of middle school, 3%
30 of affirmed African American students were held back in grade or placed in remedia-
31 tion, compared with 9% of nonaffirmed African Americans (Cohen et al., 2009).

32 Consistent with the idea that early performance outcomes can be carried forward
33 through recursive cycles, the intervention's benefits persisted over the remaining
34 2 years of middle school, even with no additional administrations in the second year
35 (Cohen et al., 2009). Its benefits rippled out to improve grades in core courses not
36 originally targeted by the intervention. On the whole, the intervention closed the
37 racial achievement gap by roughly 30% over 2 years in students' core courses of
38 English, social studies, math, and science.

39 Although all students experienced a decline in GPA during middle school, the
40 recursive nature of threat is suggested by the less pronounced drop in GPA of
41 affirmed African Americans relative to nonaffirmed African Americans. For African
42 Americans, the affirmation appeared to interrupt a recursive cycle. It made poor
43 performance in the first few weeks of 7th grade less predictive of both poor achieve-
44 ment and a low sense of belonging for the remaining years of middle school

1 (Cohen et al., 2006, 2009). The intervention's positive effects on performance and
 2 learning in the classroom have been recently replicated with Latino American
 3 middle school students and female physics students (Miyake et al., 2010; Sherman,
 4 Hartson, Binning, Purdie-Vaughns, Garcia, Taborsky-Barba, Tomassetti, Nussbaum,
 5 & Cohen, 2011). The study offers several theoretical insights. First, social identity
 6 threat interacts with social experience to shape outcomes. It increases vulnerability
 7 to early failure and its recursive impact (Cohen et al., 2009). Such threat can be
 8 overcome when interventions interrupt a recursive cycle by combating threats to
 9 the motive to see oneself as virtuous, efficacious, and socially connected. One of the
 10 things that the intervention accomplished was to change the way that students
 11 encoded their social experience. In contrast to their nonaffirmed peers, affirmed
 12 African Americans no longer globalized the meaning of early failure into a conclu-
 13 sion that they did not belong in school (Cohen et al., 2009). They were also less
 14 likely to harbor thoughts about the racial stereotype, as evidenced by a measure of
 15 the psychological accessibility of the stereotype given later in students' tenure in
 16 middle school (Cohen et al., 2006). Although social identity threat is a powerful
 17 process, it is malleable when acted upon by other powerful psychological processes.
 18 Finally, social identity threat makes people's sense of belonging more dependent on
 19 external contingencies, like adversity or early poor performance, something that
 20 these interventions remedy (Walton & Cohen, 2007).

Policy Box

Our results run counter to much conventional wisdom in education, social science, and social policy by demonstrating that social-psychological interventions, even when brief, can help remedy what are often seen as fixed disparities in real-world academic outcomes. Together with programs to improve the opportunities of at-risk students, such interventions can close racial and gender achievement gaps in classrooms.

Setting explicitly high standards, encouraging optimistic interpretations of adversity, and validating students' sense of belonging and self-integrity are among the effective psychological interventions that educators and policy makers can use. This is particularly so when dealing with members of academically at-risk groups, such as ethnic minorities in general and women in math and science. Because such students may worry about being devalued on the basis of their ethnic or gender group, their sense of belonging and self-integrity in such settings may be more uncertain.

To be successful, practitioners must understand the psychological processes that these interventions address. Such knowledge informs decisions about a range of an intervention's elements, such as its activities, timing, and the form of its integration into a classroom or work environment. Knowledge of processes also illuminates the structural factors in a school or work setting that threaten at-risk students' sense of belonging, self-integrity, and performance.

Institutionalized beliefs about school and work often presume that achievement is primary and that a sense of belonging and self-integrity is merely a reward for achievement. The reviewed research clearly shows that, to the contrary, such psychological states may be necessary preconditions for success.

1 ■ **CONCLUSION**

2 Moving from laboratory research to real-world intervention can have both theoretical and applied implications. Because social identity threat, like other important psychological processes, interacts with other factors in a social system over time, its full character and impact become apparent only over long periods of time, a time scale difficult to observe in the lab (Cohen & Garcia, 2008). Moreover, when targeted at critical points in a recursive, interactive process, interventions can produce apparently disproportionate effects both in magnitude and duration (Garcia & Cohen, *in press*; Ross & Nisbett, 1991). Indeed, interventions may sometimes have larger effects in real-world social systems like school or work. The recursive elements in them, rather than being noise that occludes effects, may trigger chain reactions that exaggerate small initial benefits (see Paluck, 2009).

3 Additionally, interventions can interact with preexisting positive forces in the social environment (Garcia & Cohen, *in press*). They can heighten their impact or dampen factors that inhibit their impact. Although social psychological interventions may be necessary for significant change, they are not sufficient. In the absence of positive environmental supports, like committed teachers, a psychological intervention is likely to have little or no effect. The interventions reviewed here have been tested in various schools and with various students, including economically disadvantaged Latinos (Sherman et al., 2011). However, they have all been tested in relatively racially integrated schools, equipped with qualified staff and basic resources for learning. In such contexts, the interventions close racial achievement gaps by 30%–50%. It seems plausible that the interventions have relatively stronger effects in such identity-integrated settings, where concerns about being seen stereotypically prove most acute (see Inzlicht & Ben-Zeev, 2000). The efficacy of the interventions in predominantly minority schools and in disadvantaged schools has received less attention (for an exception, see Blackwell et al., 2005). We suspect that in school or work settings with few resources for learning, social-psychological interventions might improve student well-being but would have little impact on learning and performance. After all, the interventions will not teach a child to read, or provide the human and curricular resources that such a student needs to learn to read. But when coupled with such resources, psychological interventions can catalyze lasting positive change (Cohen et al., 2006; Garcia & Cohen, *in press*).

4 The interventions discussed here share an important quality. They are indirect in nature (Robinson, 2011). The intervention activities have an intrinsic appeal that, on the whole, is not directly linked to a desire to improve performance. Students are not told that activities are intended to improve their well-being or achievement. Instead students are involved in enjoyable activities, such as writing about values they cherish (Cohen et al., 2006, 2009), participating in fun tutorial sessions about the brain and its potential for growth (Blackwell et al., 2007; Good et al., 2003), or helping others in need (Aronson et al., 2002; Walton & Cohen, 2007). Indeed, the benefits of the affirmation exercise are lessened when it is presented as a means to improve self-integrity (Sherman, Cohen, Nelson, Nussbaum, Bunyan, & Garcia, 2009).

1 Indirect strategies may be particularly important in situations where more direct
 2 approaches may increase threat. For instance, persuasive education that focuses
 3 people on the health and obesity consequences of bad eating habits risks stigmatiz-
 4 ing and thus threatening those they are designed to help. For any intervention, the
 5 objective benefits to recipients may be offset by the consequences of being identi-
 6 fied as “in need” (Schneider, Major, Luhtanen, & Crocker, 1996). Effective interven-
 7 tions circumvent this problem by making their support subtle or embedded in
 8 intrinsically appealing activities and social causes (see also Bolger & Amarel, 2007;
 9 Lepper et al., 1990; Robinson, 2011).

10 All the interventions discussed here are also grounded in hard-won understand-
 11 ings of motivational processes, the result of years of basic research (e.g. Dweck,
 12 1999; Steele, 1988). By contrast, interventions based on intuitive theories of
 13 motivation, such as praising children for their abilities, or doling out rewards and
 14 incentives, often backfire (Dweck, 1999; Lepper, Green, & Nisbett, 1973).

15 Understanding the effects of identity threat can help explain when and why
 16 people from all walks of life perform below their potential (Steele et al., 2002).
 17 Moreover, interventions minimizing the effects of identity threat can have a more
 18 global impact beyond achievement, including on health (see Inzlicht, Tullett, &
 19 Gutsell, 2011, Chapter 7, this volume; Walton & Cohen, 2011). Because inequalities
 20 in education correlate with inequalities in well-being and health, the effects of iden-
 21 tity threat—and of interventions to alleviate them—reach beyond the classroom.

22 ■ ACKNOWLEDGEMENTS

23 Portions of the authors’ research cited in this chapter were supported by grants from
 24 National Science Foundation (NSF/REESE program), Spencer Foundation, W. T.
 25 Grant Foundation, Nellie Mae Education Foundation, and Yale’s Institute for Social
 26 and Policy Studies.

27 References

- 28 Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on
 29 African American college students by shaping theories of intelligence. *Journal of*
 30 *Experimental Social Psychology*, 38, 113–125.
- 31 Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal
 32 attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497–529.
- 33 Barnsley, R. H., Thompson, A. H., & Barnsley, P. E. (1985). Hockey success and birth-date:
 34 The relative age effect. *Canadian Association for Health, Physical Education, and Recreation*,
 35 51, 23–28.
- 36 Beilock, S. L., Rydell, R. J., & McConnell, A. R. (2007). Stereotype threat and working
 37 memory: Mechanisms, alleviation, and spillover. *Journal of Experimental Psychology:*
 38 *General*, 136, 256–276.
- 39 Blackwell, L., Trzesniewski, K., & Dweck, C. S. (2007). Implicit theories of intelligence
 40 predict achievement across an adolescent transition: A longitudinal study and an
 41 intervention. *Child Development*, 78, 246–263.

- 1 Bolger, N., & Amarel, D. (2007). Effects of support visibility on adjustment to stress:
2 Experimental evidence. *Journal of Personality and Social Psychology*, 92, 458–475.
- 3 Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimina-
4 tion among African Americans: Implications for group identification and well-being.
5 *Journal of Personality and Social Psychology*, 77, 135–149.
- 6 Caspi, A., Elder, G. H., Jr., & Bem, D. J. (1987). Moving against the world: Life-course
7 patterns of explosive children. *Developmental Psychology*, 22, 303–308.
- 8 Cohen, G. L., & Garcia, J. (2005). I am us: Negative stereotypes as collective threats. *Journal*
9 *of Personality and Social Psychology*, 89, 566–582.
- 10 Cohen, G. L., & Garcia, J. (2008). Identity, belonging, and achievement: A model, interven-
11 tions, implications. *Current Directions in Psychological Science*, 17, 365–369.
- 12 Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap:
13 A social-psychological intervention. *Science*, 313, 1307–1310.
- 14 Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive
15 processes in self-affirmation: Intervening to close the minority achievement gap. *Science*,
16 324, 400–403.
- 17 Cohen, G. L., & Steele, C. M. (2002). A barrier of mistrust: How negative stereotypes
18 affect cross-race mentoring. In J. Aronson (Ed.), *Improving academic achievement: Impact*
19 *of psychological factors on education* (pp. 303–328). San Diego: Academic Press.
- 20 Cohen, G. L., Steele, C. M., & Ross, L. D. (1999). The mentor's dilemma: Providing
21 critical feedback across the racial divide. *Personality and Social Psychology Bulletin*, 25,
22 1302–1318.
- 23 Creswell, J. D., Welch, W., Taylor, S. E., Sherman, D. K., Gruenewald, T., & Mann, T. (2005).
24 Affirmation of personal values buffers neuroendocrine and psychological stress responses.
25 *Psychological Science*, 16, 846–851.
- 26 Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties
27 of stigma. *Psychological Review*, 96, 608–630.
- 28 Dar-Nimrod, I., & Heine, S. J. (2006). Exposure to scientific theories affects women's math
29 performance. *Science*, 314, 435.
- 30 Davies, P. G., Spencer, S. J., Quinn, D. M., & Gerhardstein, R. (2002). Consuming images:
31 How television commercials that elicit stereotype threat can restrain women academi-
32 cally and professionally. *Personality and Social Psychology Bulletin*, 28, 1615–1628.
- 33 Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality and development*.
34 Philadelphia: Taylor and Francis/Psychology Press.
- 35 Eccles, J. S., Lord, S., & Midgley, C. (1991). What are we doing to early adolescents? The
36 impact of educational contexts on early adolescents. *American Journal of Education*, 8,
37 520–542.
- 38 Freedom Writers & Gruwell, E. (1999). *The freedom writers diary*. New York: Broadway
39 Books.
- 40 Garcia, J. (2002). *When white men can't jump*. Unpublished manuscript.
- 41 Garcia, J., & Cohen, G. L. (in press). Social psychology and educational intervention. In
42 E. Shafir (Ed.), *The behavioral foundations of policy*. New York: Russell Sage Foundation
43 Press.
- 44 Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test
45 performance: An intervention to reduce the effects of stereotype threat. *Journal of Applied*
46 *Developmental Psychology*, 24, 645–662.
- 47 Heckman, J. (2006). Skill formation and the economics of investing in disadvantaged
48 children. *Science*, 312, 1900–1902.

AQ: Please provide school/organization

- 1 Inzlicht, M., & Ben-Zeev, T. (2000). A threatening intellectual environment: Why females
2 are susceptible to experiencing problem-solving deficits in the presence of males.
3 *Psychological Science*, *11*, 365–371.
- 4 Inzlicht, M., Tullett, A. M., & Gutsell, J. N. (2011). Threat spillover: The short-term and long-
5 term effects of coping with threats to social identity. In M. Inzlicht, & T. Schmader (Eds.),
6 *Stereotype threat: Theory, process, and application*. New York: Oxford University Press.
- 7 Jamieson, J. P., Mendes, W. B., Blackstock, E., & Schmader, T. (2010). Turning the knots in
8 your stomach into bows: Reappraising arousal improves performance on the GRE. *Journal*
9 *of Experimental Social Psychology*, *46*, 208–212.
- 10 Jussim, L., & Harber, K. (2005). Teacher expectations and self-fulfilling prophecies: Knowns
11 and unknowns, resolved and unresolved controversies. *Personality and Social Psychology*
12 *Review*, *9*, 131–155.
- 13 Kaiser, C. R., Brooke, V., & Major, B. (2006). Prejudice expectations moderate preconscious
14 attention to cues that are threatening to social identity. *Psychological Science*, *17*, 332–338.
- 15 Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- 16 Lepper, M. R., Aspinwall, L. G., & Mumme, D. L. (1990). Self-perception and social-
17 perception processes in tutoring: Subtle social control strategies of expert tutors. In
18 J. M. Olson, & M. P. Zanna (Eds.), *Self-inference processes: The Ontario symposium* Vol. 6
19 (pp. 217–237). Hillsdale, NJ: Lawrence Erlbaum.
- 20 Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest
21 with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality*
22 *and Social Psychology*, *28*, 129–137.
- 23 Lewin, K. (1951). *Field theory in social science; selected theoretical papers*. D. Cartwright
24 (Ed.). New York: Harper & Row.
- 25 Logel, C. E., Iserman, E. C., Spencer, S. J., Davies, P. G., & Quinn, D. M. (2009). The perils of
26 avoiding negative thoughts: Thought suppression as a mediator of stereotype threat.
27 *Journal of Experimental Social Psychology*, *45*, 299–312.
- 28 Martens, A., Johns, M., Greenberg, J., & Schimel, J. (2006). Combating stereotype threat:
29 The effect of self-affirmation on women's intellectual performance. *Journal of Experimental*
30 *Psychology*, *42*, 236–243.
- 31 Marx, D. M., & Roman, J. S. (2002). Female role models: Protecting women's math test
32 performance. *Personality and Social Psychology Bulletin*, *28*, 1183–1193.
- 33 Menec, V. H., Perry, R. P., Struthers, C. W., Schonwetter, D. J., Hechter, F. J., & Eichholz, B. L.
34 (1994). Assisting at-risk college students with attributional retraining and effective
35 teaching. *Journal of Applied Social Psychology*, *24*, 675–701.
- 36 Miyake, A., Kost-Smith, L. E., Finkelstein, N. D., Pollock, S. J., Cohen, G. L., & Ito, T. A.
37 (2010). *Reducing the gender achievement gap in college science: A classroom study of values*
38 *affirmation*. *Science*, *330*, 1234–1237.
- 39 Murphy, M. C., Steele, C. M., & Gross, J. J. (2007). Signaling threat: How situational
40 cues affect women in math, science, and engineering settings. *Psychological Science*, *18*,
41 879–885.
- 42 Nisbett, R. E. (2009). *Intelligence and how to get it: Why schools and cultures count*. New York:
43 W. W. Norton and Co.
- 44 Paluck, E. L. (2009). Reducing intergroup prejudice and conflict using the media: A field
45 experiment in Rwanda. *Journal of Personality and Social Psychology*, *96*, 574–587.
- 46 Purdie-Vaughns, V., Steele, C., Davies, P., Dittmann, R., & Randall-Crosby, J. (2008). Social
47 identity contingencies: How diversity cues signal threat or safety for African Americans in
48 mainstream institutions. *Journal of Personality and Social Psychology*, *94*, 615–630.

- 1 Robinson, T. N. (2011). Stealth interventions for obesity prevention and control: Motivating
2 behavior change. In L. Dube, A. Bechara, A. Dagher, A. Drewnowski, J. Lebel, P. James,
3 R. Yada, M. Laflamme-Sanders. (Eds.), *Obesity prevention: The role of society and brain on*
4 *individual behavior* (pp. 319–327).
- 5 Rosenthal, R., & Jacobson, L. (1992). *Pygmalion in the classroom*. Expanded edition.
6 New York: Irvington.
- 7 Ross, L., & Nisbett, R. E. (1991). *The person and the situation*. McGraw-Hill.
- 8 Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic
9 motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- 10 Rydell, R. J., McConnell, A. R., & Beilock, S. L. (2009). *Journal of Personality and Social*
11 *Psychology*, 96, 949–966.
- 12 Schachter, S. (1959). *The psychology of affiliation*. Stanford: Stanford University Press.
- 13 Schmader, T., Johns, M., & Forbes, C. (2008). An integrated process model of stereotype
14 threat effects on performance. *Psychological Review*, 115, 336–356.
- 15 Schmader, T., Forbes, C. E., Zhang, S., & Mendes, W. B. (2009). A meta-cognitive perspec-
16 tive on cognitive deficits experienced in intellectually threatening environments.
17 *Personality and Social Psychology Bulletin*, 35, 584–596.
- 18 Schmeichel, B. J., & Vohs, K. D. (2009). Self-affirmation and self-control: Affirming core
19 values counteracts ego depletion. *Journal of Personality and Social Psychology*, 96,
20 770–782.
- 21 Schneider, M. E., Major, B., Luhtanen, R., & Crocker, J. (1996). Social stigma and the poten-
22 tial costs of assumptive help. *Personality and Social Psychology Bulletin*, 22, 201–209.
- 23 Sherman, D. K., Hartson, K. A., Binning, K., Purdie-Vaughns, V., Garcia, J., Taborisky-Barba,
24 S., Tomassetti, S., Nussbaum, D., & Cohen, G. (2011). *Identity threat, self-affirmation, and*
25 *academic performance*. Manuscript in preparation.
- 26 Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation
27 theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* Vol. 38
28 (pp. 183–242). San Diego: Academic Press.
- 29 Sherman, D. K., Cohen, G. L., Nelson, L. D., Nussbaum, A. D., Bunyan, D. P., & Garcia, J.
30 (2009). Affirmed yet unaware: The role of awareness in the process of self-affirmation.
31 *Journal of Personality and Social Psychology*, 97, 745–764.
- 32 Simmons, R. G., Black, A., & Zhou, Y. (1991). African-Americans versus White children and
33 the transition into junior high school. *American Journal of Education*, 99, 481–520.
- 34 Snyder, C. R. (2000). *Handbook of hope: Theory, measures, and applications*. New York:
35 Academic Press.
- 36 Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self.
37 In L. Berkowitz (Ed.), *Advances in experimental social psychology* Vol. 21 (pp. 261–302).
38 New York: Academic Press.
- 39 Steele, C. M. (1997). A threat in the air: How stereotypes shape the intellectual identities
40 and performance of women and African-Americans. *American Psychologist*, 52, 613–629.
- 41 Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance
42 of African Americans. *Journal of Personality and Social Psychology*, 69, 797–811.
- 43 Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The
44 psychology of stereotype and social identity threat. In M. Zanna (Ed.), *Advances in*
45 *experimental social psychology* Vol. 34 (pp. 379–440). New York: Academic Press.
- 46 Steele, C. M., Spencer, S., Nisbett, R., Hummel, M., Harber, K., & Schoem, D. (2004).
47 *African American college achievement: A “wise” intervention*. Manuscript submitted for
48 publication.

AQ: Please
provide city of
publisher

- 1 Tyler, T. R. (2004). Procedural justice. In A. Sarat (Ed.), *The Blackwell companion to law and*
- 2 *society* (pp. 435–452). Malden, MA: Blackwell.
- 3 Walberg, H. J. (1984). Improving the productivity of America's schools. *Educational*
- 4 *Leadership*, 41, 19–27.
- 5 Walton, G. M., & Carr, P. (2011). Social belonging and the motivation and intellectual
- 6 achievement of negatively stereotyped students. In M. Inzlicht, & T. Schmader (Eds.),
- 7 *Stereotype threat: Theory, process, and application*. New York: Oxford University Press.
- 8 Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and
- 9 achievement. *Journal of Personality and Social Psychology*, 92, 82–96.
- 10 Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves
- 11 academic and health outcomes of minority students, *Science*, 331, 1447–1451.
- 12 Wilson, T. D., Damiani, M., & Shelton, N. (2002). Improving the academic performance
- 13 of college students with brief attributional interventions. In J. Aronson (Ed.), *Improving*
- 14 *academic achievement: Impact of psychological factors on education*. San Diego: Academic
- 15 Press.
- 16 Yeager, D., Purdie-Vaughns, V., Garcia, J., & Cohen, G. L. Wise feedback: Invoking high
- 17 standards and assurance increases minority students' performance and motivation.
- 18 Manuscript in preparation.